



## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

03 JUN 2005

Applicant's or agent's file reference 2002DE442		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA416)	
International application No. PCT/EP 03/13279	International filing date (day/month/year) 26.11.2003	Priority date (day/month/year) 04.12.2002	
International Patent Classification (IPC) or both national classification and IPC C07C211/63			
Applicant CLARIANT INTERNATIONAL LTD			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 1 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand  25.06.2004		Date of completion of this report  14.03.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer  Bertran Nadal, J  Telephone No. +31 70 340-3924 	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/13279**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-9 as originally filed

**Claims, Numbers**

2-14 as originally filed

1 received on 16.02.2005 with letter of 15.02.2005

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-14
	No: Claims	
Inventive step (IS)	Yes: Claims	1-14
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1. Present claim 1 is unclear since in the definition of component (c), the term "may be used" could mean that the solvent defined thereafter is not necessarily used. Furthermore, the term "ethoxylated" is inconsistent with the formula in which (AO) corresponds to a  $C_3H_6$ -group. In the present reasoned statement component (c) of claim 1 is restricted to nonionic solvents which fulfill the formula  $R-O-(AO)_nH$ , where R is an alkyl or an alkenyl group containing 8 to 22 carbon atoms, A is  $C_2H_4$  and/or  $C_3H_6$  and n is a number from 0 to 20, or the formula  $C_9H_{19}$ -phenyl-O-(AO)<sub>n</sub>H, where A and n are as defined above.

2. Reference is made to the following document:

D1: US-A-5 414 124

3. The document D1 discloses (the references in parentheses applying to this document) a method of making a composition consisting of a quaternary ammonium compound, an alkylene glycol solvent and water. The method comprises the step of dissolving a dialkyl ( $C_8$ - $C_{24}$ ) methylamine reactant and an alkyl halide reactant in alkylene glycol or dialkylene glycol, and heating the reactant solution until reaction completion. Water is added to the reaction solution to form a quaternary ammonium compound solution containing 80 % of quaternary ammonium compound, from 5 to 20 % of alkylene glycol, the remainder being water (column 2 lines 30-34, 47-63, claims 1, 18, 19, example 5).

The subject-matter of claim 1 therefore differs from this known composition in that the solvent is selected from the formula  $R-O-(AO)_nH$ , where R is an alkyl or an alkenyl group containing 8 to 22 carbon atoms, or the formula  $C_9H_{19}$ -phenyl-O-(AO)<sub>n</sub>H.

Hence, the subject-matter of claim 1 appears to be new (Article 33(2) PCT).

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EXAMINATION REPORT - SEPARATE SHEET**

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4. The problem to be solved by the present invention may therefore be regarded as to provide quaternary ammonium composition in a medium that is part of the final product and that has a hydrophobic group, and without having to remove any solvent.

The solution proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons.

D1 does not disclose nor suggest the replacement of propylene glycol by a more hydrophobic solvent. In the present compositions, most of the water used in making formulations of the quaternary ammonium compounds is replaced by certain compounds which not only provide solubility to the quaternary ammonium compounds but are also useful in detergent compositions into which the claimed formulations are finally processed.

The independent process claims 7 and 8 for preparing a composition as claimed in claim 1, also fulfill the requirements of the PCT with respect to novelty and inventive step for the same reasons.

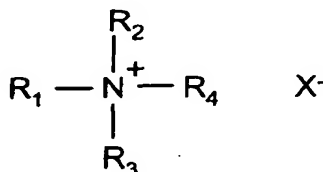
Claims 2-6 and 9-14 are dependent on claims 1 and 7 or 8 respectively, and as such also meet the requirements of the PCT with respect to novelty and inventive step.

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2002DE442 WO

New claim 1:

1. A quaternary ammonium composition essentially consisting of
  - a) a cationic compound with general formula:



wherein  $R_1$  is  $C_8$ - $C_{22}$ -alkyl,  $C_8$ - $C_{22}$ -alkenyl,  $C_8$ - $C_{22}$ -alkylamidopropyl,  $C_8$ - $C_{22}$ -alkenyl-amidopropyl,  $C_8$ - $C_{22}$ -alkyl/alkenyl(poly)alkoxyalkyl,  $C_8$ - $C_{22}$ -alkanoylethyl or  $C_8$ - $C_{22}$ -alkenoylethyl,  $R_2$ ,  $R_3$  and  $R_4$  are  $C_1$ - $C_{22}$ -alkyl,  $C_2$ - $C_{22}$ -alkenyl or a group of the formula  $-A-(OA)_n-OH$ ,  $A$  is  $-C_2H_4-$  and/or  $-C_3H_6-$ ,  $n$  is a number from 0 to 20 and  $X$  is an anion,

- b) water and
- c) a non-ionic solvent selected from the group consisting of as solvent there may be used the following ones, an alcohol or an ethoxylated alcohol with general formula  $R-O-(AO)_nH$ , where  $R$  is alkyl or alkenyl group containing 8 to 22 carbon atoms,  $A$  is  $C_2H_4$  and/or  $C_3H_6$  and  $n$  is a number from 0 to 20, nonylphenol or ethoxylated nonylphenol with general formula  $C_9H_{19}$ -phenyl- $O-(AO)_nH$ , where  $A$  and  $n$  are as defined above, which composition is characterized in that it contains less than 20 % by weight of water.